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EXAMINER

MISLEH, JUSTIN P

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/408,873  
Filing Date: September 29, 1999  
Appellant(s): SEEGER ET AL.

THOMAS ZELL  
For Appellant

**EXAMINER'S ANSWER**

**MAILED**

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This is in response to the appeal brief filed March 28, 2005 and supplemental appeal brief filed September 1, 2005 appealing from the Office Action mailed July 1, 2005.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The Examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The Appellant's statement of the status of amendments after Final Rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The Appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6,657,667	Anderson	12-2003
5,774,179	Chevrette et al.	06-1998
5,528,290	Saund	06-1996
6,256,058 B1	Kang et al.	07-2001
6,104,840	Ejiri et al.	08-2000

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 18, 20, 29 – 33, and 38 – 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saund in view of Chevrette et al.**
3. For **Claim 18**, Saund disclose, as shown in figures 1 and 3 and as stated in columns 3 (lines 12 – 35), an image acquisition system (see figure 1), comprising a plurality of cameras

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(camera subsystem 54 includes a plurality of arrayed cameras) records a plurality of views (see figure 3) an area having one or more objects (blackboard 52 is an object) to produce a plurality of camera images of different portions of the area (62, 64, and 66 of figure 3; also see column 3, lines 40 – 52), each camera (camera subsystem 54) having a lens positioned within a plane substantially orthogonal to an optical axis of the lens (see column 3, lines 30 – 35; As stated, each captured image contains perspective distortion causes by each camera having an off-axis viewpoint. Therefore, it must be that each camera has a lens positioned within a plane substantially orthogonal to an optical axis of the lens), wherein the view of each camera is positioned to record a portion of the area (see figure 3); and an image processing system (computer 56) coupled to the plurality of cameras (54) and operable to combine the plurality of camera images recorded to produce a composite image having a higher resolution than the resolution of one or more of the simultaneously recorded view of the area (see column 3 lines 12 – 53).

4. While Saund discloses an array (plurality) of cameras (54) capturing a plurality of images (see figure 3) to form a high-resolution composite image, Saund does not disclose:

that images are recorded by the cameras simultaneously; and

that at least one of the cameras has an offset lens to produce an oblique field of view of the portion it records of the area, wherein the offset lens of the at least one camera may be shifted to one of a plurality of offsets.

5. In regards to simultaneously recording a plurality of images by a plurality of respective cameras, Official Notice (MPEP § 2144.03) is taken that both the concepts and advantages of simultaneously recording a plurality of images by a plurality of respective cameras are well

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known and expected in the art. At the time the invention was made, it would have been obvious to one with ordinary skill in the art to have simultaneously recorded a plurality of images by a plurality of respective cameras for the advantage of increasing image capturing time so as to reduce processing time and power required for color imagery registration of time-sequenced captured images.

6. In regards to at least one of camera has an offset lens, Chevrette et al. also disclose a system and method for generating a high-resolution image. More specifically, Chevrette et al. discloses a method for fast microscanning that uses a movable lens.

7. Figures 1d and 2 disclose the principles of microscanning, which involves moving a lens a distance of a half a pixel pitch to record a microscanned image (e.g., the four single number images in Figure 1d) and “interlacing” the four microscanned images to arrive at the final image (e.g., the large image with numbers 1-4 in it). Microscanning has the effect of increasing the spatial resolution (i.e., reciprocal sampling interval on object plane, e.g. DPI) and the pixel resolution (i.e., number of pixels). In the example in Figure 1d, the four single-number images have a lower spatial and a lower pixel resolution than the final image with numbers 1 – 4. Hence, Chevrette et al. at least teaches capturing an image while the lens of a camera is in an offset position, moving the lens to another offset position and capturing a second image, and continuing to move and capture until all views of an area are captured and then generating a final high-resolution microscanned image.

8. Therefore, Chevrette et al. provide wherein at least one of the cameras has an offset lens to produce an oblique field of view of the portion it records of the area and wherein the offset lens of the at least one camera may be shifted to one of a plurality of offsets. The combination of

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Saund in view Chevrette et al., would yield an extremely high-resolution image of an area generated from captured image tiles 62 – 66, wherein captured image 62 was captured by one camera of the array using the offset lens microscanning method of Chevrette et al., wherein captured image 64 was captured by another one camera of the array also using the offset lens microscanning method of Chevrette et al., and wherein captured image 66 was captured by another one camera of the array using the offset lens microscanning method of Chevrette et al.

9. As stated in columns 1 (lines 34 – 67) and 2 (lines 1 – 36) of Chevrette et al., at the time the invention was made, it would have been obvious to one with ordinary skill in the art to include the offset lens microscanning apparatus, taught by Chevrette et al., in the image acquisition system and method, disclosed by Saund, for the advantage capturing high-resolution low noise images using a robust, inexpensive, and low power configuration.

10. For **Claim 29**, Saund disclose, as shown in figures 1 and 3 and as stated in columns 3 (lines 12 – 35), a method of scanning with a camera system having a plurality of camera (see figure 1), comprising the steps of: a) recording a plurality of views (see figure 3) of an area having one or more objects (blackboard 52 is an object) with a plurality of cameras (camera subsystem 54 includes a plurality of arrayed cameras) to produce a plurality of camera images of different portions of the area (62, 64, and 66 of figure 3; also see column 3, lines 40 – 52), each camera (camera subsystem 54) having a lens positioned within a plane substantially orthogonal to an optical axis of the lens (see column 3, lines 30 – 35; As stated, each captured image contains perspective distortion caused by each camera having an off-axis viewpoint. Therefore, it must be that each camera has a lens positioned within a plane substantially orthogonal to an optical axis of the lens), wherein the view of each camera is positioned to record a portion of the

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area (see figure 3); and b) combining the plurality of recorded camera images (computer 56) to produce a composite image having a higher resolution than the resolution of one or more of the simultaneously recorded view of the area (see column 3 lines 12 – 53).

11. While Saund discloses an array (plurality) of cameras (54) capturing a plurality of images (see figure 3) to form a high-resolution composite image, Saund does not disclose:

that images are recorded by the cameras simultaneously; and

that at least one of the cameras has an offset lens to produce an oblique field of view of the portion it records of the area, wherein the offset lens of the at least one camera may be shifted to one of a plurality of offsets.

12. In regards to simultaneously recording a plurality of images by a plurality of respective cameras, Official Notice (MPEP § 2144.03) is taken that both the concepts and advantages of simultaneously recording a plurality of images by a plurality of respective cameras are well known and expected in the art. At the time the invention was made, it would have been obvious to one with ordinary skill in the art to have simultaneously recorded a plurality of images by a plurality of respective cameras for the advantage of increasing image capturing time so as to reduce processing time and power required for color imagery registration of time-sequenced captured images.

13. In regards to at least one of camera has an offset lens, Chevrette et al. also disclose a system and method for generating a high-resolution image. More specifically, Chevrette et al. discloses a method for fast microscanning that uses a movable lens.

14. Figures 1d and 2 disclose the principles of microscanning, which involves moving a lens a distance of a half a pixel pitch to record a microscanned image (e.g., the four single number



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images in Figure 1d) and “interlacing” the four microscanned images to arrive at the final image (e.g., the large image with numbers 1-4 in it). Microscanning has the effect of increasing the spatial resolution (i.e., reciprocal sampling interval on object plane, e.g. DPI) and the pixel resolution (i.e., number of pixels). In the example in Figure 1d, the four single-number images have a lower spatial and a lower pixel resolution than the final image with numbers 1 – 4. Hence, Chevrette et al. at least teaches capturing an image while the lens of a camera is in an offset position, moving the lens to another offset position and capturing a second image, and continuing to move and capture until all views of an area are captured and then generating a final high-resolution microscanned image.

15. Therefore, Chevrette et al. provide wherein at least one of the cameras has an offset lens to produce an oblique field of view of the portion it records of the area and wherein the offset lens of the at least one camera may be shifted to one of a plurality of offsets. The combination of Saund in view Chevrette et al., would yield an extremely high-resolution image of an area generated from captured image tiles 62 – 66, wherein captured image 62 was captured by one camera of the array using the offset lens microscanning method of Chevrette et al., wherein captured image 64 was captured by another one camera of the array also using the offset lens microscanning method of Chevrette et al., and wherein captured image 66 was captured by another one camera of the array using the offset lens microscanning method of Chevrette et al.

16. As stated in columns 1 (lines 34 – 67) and 2 (lines 1 – 36) of Chevrette et al., at the time the invention was made, it would have been obvious to one with ordinary skill in the art to include the offset lens microscanning method, taught by Chevrette et al., in the image acquisition

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system and method, disclosed by Saund, for the advantage capturing high-resolution low noise images using a robust, inexpensive, and low power configuration.

17. As for **Claim 20**, according to *The American Heritage® Dictionary of the English Language, Fourth Edition*, a mosaic is a composite picture made of overlapping, usually aerial, photographs. Thus, as shown in figures 3 and 8 and as stated in column 3 (lines 16 – 21 and 30 – 35), Saund discloses wherein the image processing system (computer 56) is operable to produce the composite image by mosaicing the camera images.

18. As for **Claim 30**, according to *The American Heritage® Dictionary of the English Language, Fourth Edition*, a mosaic is a composite picture made of overlapping, usually aerial, photographs. Thus, as shown in figures 3 and 8 and as stated in column 3 (lines 16 – 21 and 30 – 35), Saund discloses mosaicing the camera images.

19. As for **Claim 31**, Saund discloses, as shown in figure 3 and as stated in columns 3 (lines 16 – 21 and 30 – 35), wherein the image processing system (computer 56) is operable to combine the plurality of cameras (camera subsystem 54 including array of cameras) to produce a composite image of the plurality of views by patching the plurality of camera images together at regions of overlap.

20. As for **Claim 38**, Saund discloses, as shown in figure 3 and as stated in columns 3 (lines 16 – 21 and 30 – 35), wherein the image processing system (computer 56) is operable to combine the plurality of cameras (camera subsystem 54 including array of cameras) to produce a composite image of the plurality of views by patching the plurality of camera images together at regions of overlap.

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21. As for **Claim 32**, Saund discloses, as shown in figure 1 and as stated in column 3 (lines 22 – 29), that camera subsystem (54) may comprise an array of fixed or rotatable cameras; however, Saund is silent with regard to the housing of the camera subsystem (54) and, likewise, wherein the plurality of cameras are arranged together in a housing.

22. Albeit, Official Notice (MPEP § 2144.03) is taken that both the concepts and advantages of arranging a plurality of cameras together in a housing are well known and expected in the art. At the time the invention was made, it would have been obvious to one with ordinary skill in the art to have for the advantage of reducing expense, operations and computations required in forming a composite image.

23. As for **Claim 39**, Saund discloses, as shown in figure 1 and as stated in column 3 (lines 22 – 29), that camera subsystem (54) may comprise an array of fixed or rotatable cameras; however, Saund is silent with regard to the housing of the camera subsystem (54) and, likewise, wherein the plurality of cameras are arranged together in a housing.

24. Albeit, Official Notice (MPEP § 2144.03) is taken that both the concepts and advantages of arranging a plurality of cameras together in a housing are well known and expected in the art. At the time the invention was made, it would have been obvious to one with ordinary skill in the art to have for the advantage of reducing expense, operations and computations required in forming a composite image.

25. As for **Claim 33**, Saund discloses, as shown in figure 1, wherein the plurality of cameras (54) are positioned over a blackboard (52); however, Saund is silent with regard to positioning the cameras over a desk.

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26. Albeit, **Official Notice** (MPEP § 2144.03) is taken that both the concepts and advantages of positioning a plurality of cameras over a desk are well known and expected in the art. At the time the invention was made, it would have been obvious to one with ordinary skill in the art to have for the advantage of reducing vibration and camera shake thereby providing a high-quality image without significant distortion.

27. As for **Claim 40**, Saund discloses, as shown in figure 1, wherein the plurality of cameras (54) are positioned over a blackboard (52); however, Saund is silent with regard to positioning the cameras over a desk.

28. Albeit, **Official Notice** (MPEP § 2144.03) is taken that both the concepts and advantages of positioning a plurality of cameras over a desk are well known and expected in the art. At the time the invention was made, it would have been obvious to one with ordinary skill in the art to have for the advantage of reducing vibration and camera shake thereby providing a high-quality image without significant distortion.

29. **Claims 25 – 27** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Anderson in view of Chevrette et al.**

30. For **Claim 25**, Anderson discloses, as shown in figures 2 and 6 – 10 and as stated in columns 6 (lines 8 – 67), 7, 8, 9, and 10 (lines 1 – 14), a method of scanning with a camera, comprising the steps of:

(a) recording a first view (positions 1, 2, or 3) of an area having one or more objects (scene sections 1, 2, or 3) while a lens (220) is positioned in a plane substantially orthogonal to

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an optical axis (236) of the lens (220) while the camera is at a first position (see figures 2, 6, and 9);

(b) recording a second view (positions 1, 2, or 3) of the area (scene sections 1, 2, or 3) while the lens (220) is positioned in the plane after the camera is rotated to a second position (positions 1, 2, or 3 as shown in figures 6 and 9); and

(c) combining all recorded views to produce a composite image having a higher resolution than the resolution of one or more of the recorded views (see figures 8 – 10).

Anderson discloses a method for capturing overlapping images by rotating a camera about an axis perpendicular to the optical axis of the lens of the camera. Figures 6A and 6B (shown below) are diagrams illustrating the capture of a series of overlapping images by a camera for use in composite image generation. More specifically, Figure 6A is a top view showing the camera rotated into three positions to capture three corresponding images and Figure 6B shows a capture sequence that results in one row of three images, or a 1 x 3 panorama. Anderson states, "the present invention enables a user to manually capture a multidimensional array of overlapping images for use in composite image generation, rather than a one-dimensional array." Although Anderson does not disclose wherein the lens is positioned at an offset position within in a plane substantially orthogonal to an optical axis of the lens.

On the other hand, Chevrette et al. also disclose a method for generating a high-resolution image. More specifically, Chevrette et al. discloses a method for fast microscanning that uses a movable lens. Figures 1d and 2 (shown below) disclose the principles of microscanning, which involves moving a lens a distance of a half a pixel pitch to record a microscanned image (e.g., the four single number images in Fig. 1d) and "interlacing" the four microscanned images to

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arrive at the final image (e.g., the large image with numbers 1-4 in it). Microscanning has the effect of increasing the spatial resolution (i.e., reciprocal sampling interval on object plane, e.g. DPI) and the pixel resolution (i.e., number of pixels). In the example in Figure 1d, the four single-number images have a lower spatial and a lower pixel resolution than the final image with numbers 1 – 4.

As stated in columns 1 (lines 34 – 67) and 2 (lines 1 – 36) of Chevrette et al., at the time the invention was made, it would have been obvious to one with ordinary skill in the art to include the offset lens microscanning method, taught by Chevrette et al., in the method for capturing overlapping images by rotating a camera about an axis perpendicular to the optical axis of the lens of the camera, disclosed by Anderson, for the advantage capturing high-resolution low noise images using a robust, inexpensive, and low power configuration.

31. As for **Claim 26**, Anderson disclose, as clearly shown in figures 8 – 10, the method of Claim 25, further comprising between step (b) and (c), the step of:

(d) recording a next view (positions 1, 2, or 3) of the area (scene sections 1, 2, or 3) while the lens is positioned at the offset position (see obvious ness set forth above) within the plane while the camera is rotated to a third position.

32. As for **Claim 27**, Anderson disclose, as clearly shown in figures 8 – 10, the method of Claim 26, further comprising the step of:

(e) repeating step (d) until all view of the area have been recorded.

33. **Claim 28** is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson in view of Chevrette et al. in further view of Kang et al.

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34. As for **Claim 28**, Anderson view of Chevrette et al. show a method a method of scanning with a camera, comprising the steps of recording a first view of an area while a lens is positioned at an offset position within in a plane, recording a second view of the area while the lens is positioned in the plane after the camera is rotated to a second position, and combining all recorded views to produce a composite image having a higher resolution than the resolution of one or more of the recorded views. However, Anderson in view of Chevrette et al. do not show wherein step (b) further comprises the step of recording the second view of the area while the lens is position at the offset position with the plane while the camera is rotated 180 degrees to the second position.

35. On the other hand, Kang et al. also shows, as seen in figures 1- 3 and column 3 (lines 30 – 60), a method of scanning with a camera including at least two recorded views of an area wherein the camera (100) is in a first position to record a first view (314) and the camera is rotated (about axis 276) to a second position, 180 degrees from the first position, to record a second view (319) of the area. As stated in column 1 (lines 10 – 60), at the time the invention was made, one with ordinary skill in the art would have been motivated to include a method of scanning with a camera wherein the camera records a first view in a first position and is rotated 180 degrees to a second position to record a second view, as taught by Kang et al., in the method of scanning with a camera, or Anderson in view of Chevrette et al. as a means to record a panoramic image. Therefore, at the time the invention was made, it would have been obvious to one with ordinary skill in the art to include a method of scanning with a camera wherein the camera records a first view in a first position and is rotated 180 degrees to a second position to

record a second view, as taught by Kang et al., in the method of scanning with a camera, or Anderson in view of Chevrette et al.

36. **Claims 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson in view of Chevrette et al. in further view of Ejiri et al.**

37. As for **Claims 36 and 37**, Anderson discloses, as shown in figure 6A, recording a first view of an area while the camera is at a first position and recording a second view of the area after the camera is rotated to a second position. Anderson discloses that the camera is rotated to all positions about an axis perpendicular to the optical axis of the camera lens and does not disclose that the camera is rotated to all positions about an axis parallel to the optical axis of the camera lens.

38. On the hand, Ejiri et al. also disclose a camera scanning method operable to produce a composite image by mosaicing a plurality of camera images. More specifically, Ejiri et al. teach, as shown in figure 5 and as stated in column 5 (lines 62 – 66), that the plurality of images are recorded while the camera is rotated (by angle  $\gamma$ ) to all positions (31 and 32) about an axis parallel to the optical axis of the camera lens (O). As shown in figure 6, the angle  $\gamma$  corresponds to the rotation of the camera about an axis ( $\xi$ ) that is parallel to the optical axis of the camera (O). As stated in column 1 (lines 25 – 39, 61, and 62), at the time the invention was made, one with ordinary skill in the art would have been motivated to record a plurality of views while the camera is rotated to all positions about an axis parallel to the optical axis of the camera lens, as taught by Ejiri et al., in the camera scanning method, taught by Anderson in view of Chevrette et al., as a means to form a composite image with a naturally continuous appearance comprised of a



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plurality of distortion free images wherein the relative angle of each of the plurality of individual images is not readily available. Therefore, at the time the invention was made, it would have been obvious to one with ordinary skill in the art to have recorded a plurality of views while the camera is rotated to all positions about an axis parallel to the optical axis of the camera lens, as taught by Ejiri et al., in the camera scanning method, taught by Anderson in view of Chevrette et al.

*Allowable Subject Matter*

39. Claims 34, 35, 41, and 42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

40. At least for **Claims 34 and 41**, the combination of Saund in view Chevrette et al., which is regarded as the closest prior art, yields an extremely high-resolution image of an area generated from captured image tiles, wherein a first captured image is captured by one camera of the array using an offset lens microscanning method, wherein a second captured image is captured by another one camera of the array also using the offset lens microscanning, and wherein at least a third captured image is captured by another one camera of the array using the offset lens microscanning method. However, the closest prior art does not teach or fairly suggest wherein at least a second of the plurality of cameras as a fixed offset lens to produce an oblique field of view.

**(10) Response to Argument**

**First Group of Claims 18, 20, 29 – 33, and 38 – 40**

41. Initially, the Examiner notes that Appellant's remarks (see Supplemental Appeal Brief, page 9) regarding the present group rely upon Figure A (reproduced below) in the Office Action of July 2005 as being illustrative of the combination of Saund and Chevrette et al. on the basis that the Office Action of July 2005 (see Office Action, page 9 – line 14) makes reference to Figure A. However, as indicated on page 2 (paragraph 4) – page 6 (paragraph 9) of the Office Action, the Examiner intended Figure A to be strictly illustrative of the combination of Anderson in view of Chevrette et al. The Examiner's reference to Figure A in regards to the combination of Saund in view Chevrette et al. is typographical in nature and requests it be treated as such.

42. Moreover, Appellant argues, "as shown in Chevrette's Figure 1d, the resulting microscanned image ... is not produced by 'simultaneously recording a plurality of views' as claimed by Appellant in independent claims 18 and 29, instead it is produced after 'interlacing' four microscanned images (i.e., the four single number images)."

43. The Examiner respectfully disagrees with Appellant's position on the basis that Appellant's arguments are misplaced. In the Office Action of July 2005, the Examiner did not rely on either Saund or Chevrette et al. taken alone or in combination to teach the above claim recitation. Rather, as stated in the grounds of rejection above and on page 10 (line 8) of the Office Action, the Examiner took **Official Notice** that both the concepts and advantages of *simultaneous recording a plurality of images by a plurality of respective cameras* are well known and expected in the art. "To adequately traverse such a finding, an applicant must

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specifically point out the supposed errors in the examiner's action, which would include stating why the noticed fact is not considered to be common knowledge or well-known in the art." See MPEP §2144.03 [R-1]. Appellant has not traversed the Examiner's assertion of Official Notice; hence, the well-known in the art statement *simultaneous recording a plurality of images by a plurality of respective cameras* is taken to be admitted prior art.

### **Second Group of Claims 25 – 27**

#### ***Initial Argument (found in Appeal Brief)***

44. Appellant argues, "Chevrette fails to disclose or suggest rotating a camera, and any rotation of the camera as taught by Anderson fails to retain the lens in an offset position within a plane substantially orthogonal to the optical axis of the lens."

45. While the Examiner AGREES with Appellant's uncombined individual interpretation of Anderson and uncombined individual interpretation of Chevrette, the Examiner RESPECTFULLY DISAGREES with Appellant's interpretation of the combined teachings of Anderson in view of Chevrette. Appellant's arguments are traversed for the following reasons:

#### ***Anderson (US 6 657 667 B1)***

46. As correctly interpreted by Appellant (see Appeal Brief, page 11), Anderson discloses a method for capturing overlapping images by rotating a camera about an axis perpendicular to the optical axis of the lens of the camera. Figures 6A and 6B (shown below) are diagrams illustrating the capture of a series of overlapping images by a camera for use in composite image generation. More specifically, Figure 6A is a top view showing the camera rotated into three

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positions to capture three corresponding images and Figure 6B shows a capture sequence that results in one row of three images, or a 1 x 3 panorama. Anderson states, "the present invention enables a user to manually capture a multidimensional array of overlapping images for use in composite image generation, rather than a one-dimensional array."

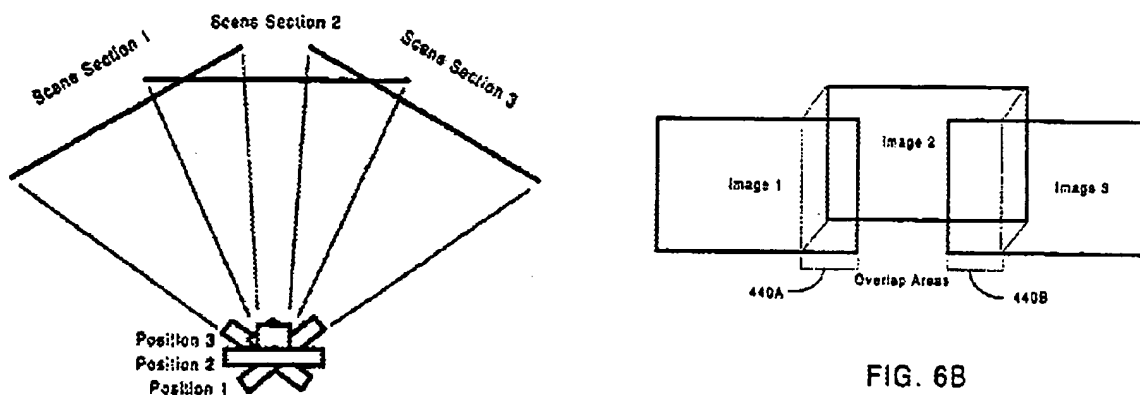


FIG. 6B

*Chevrette et al. (US 5 774 179)*

47. Also as correctly interpreted by Appellant (see Appeal Brief, pages 9 and 10), Chevrette et al. discloses a method for fast microscanning that uses a movable lens. Figures 1d and 2 (shown below) disclose the principles of microscanning, which involves moving a lens a distance of a half a pixel pitch to record a microscanned image (e.g., the four single number images in Fig. 1d) and "interlacing" the four microscanned images to arrive at the final image (e.g., the large image with numbers 1-4 in it). Microscanning has the effect of increasing the spatial resolution (i.e., reciprocal sampling interval on object plane, e.g. DPI) and the pixel resolution (i.e., number of pixels). In the example in Figure 1d, the four single-number images have a lower spatial and a lower pixel resolution than the final image with numbers 1 – 4.

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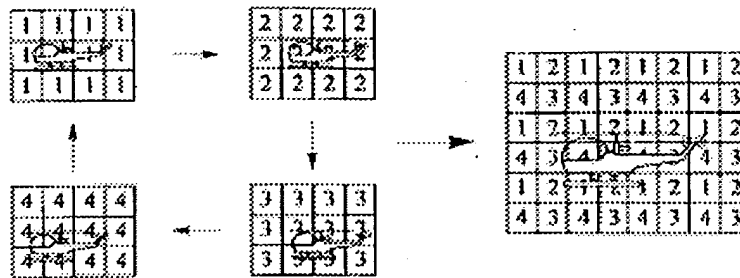


Fig. 1d

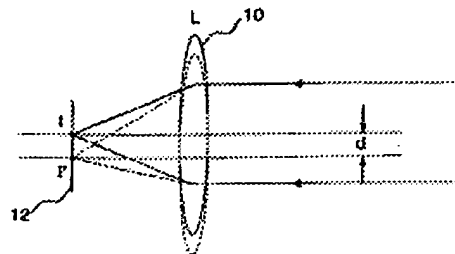


Fig. 2

*Anderson in view of Chevette et al.*

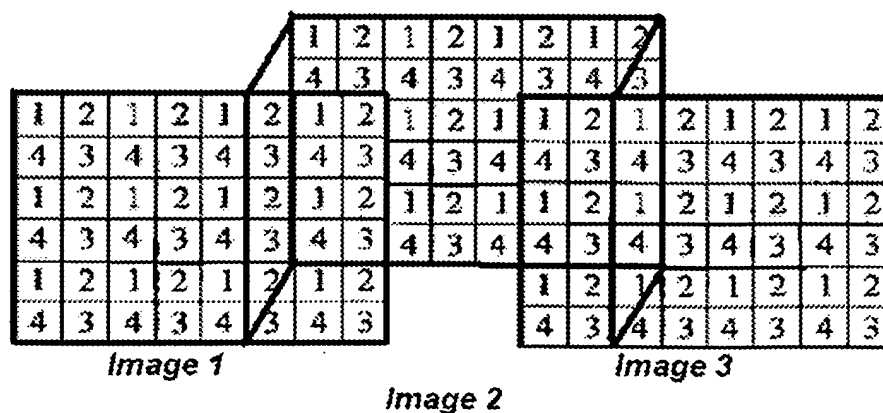
48. Appellant specifically states, “Chevette fails to disclose or suggest rotating a camera, and any rotation of the camera as taught by Anderson fails to retain the lens in an offset position within a plane substantially orthogonal to the optical axis of the lens.”

49. Anderson, the primary reference, at least discloses capturing an image while the camera is in a first position, rotating the camera to another position and capturing a second image, and continuing to rotate and capture until all views of an area are captured and then generating a final high-resolution composite image of all captured images. Chevette et al., the secondary reference, at least discloses capturing an image while the lens of a camera is in an offset position, moving the lens to another offset position and capturing a second image, and continuing to move

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and capture until all views of an area are captured and then generating a final high-resolution microscanned image.

50. Hence, the combination of Anderson in view Chevrette et al., as shown in the Examiner-generated exemplary **Figure A** below, would yield an extremely high-resolution panoramic image of an area generated from Image 1, Image 2, and Image 3, wherein Image 1 was captured when the camera is in a first position using the offset lens microscanning method of Chevrette et al., wherein Image 2 was captured when the camera is in a second position also using the offset lens microscanning method of Chevrette et al., and wherein Image 3 was captured when the camera is in a third position again using the offset lens microscanning method of Chevrette et al. As clearly shown in **Figure A**, the lens is offset to offset position 1 in each of Images 1, 2, and 3; the lens is offset to offset position 2 in each of Images 1, 2, and 3; the lens is offset to offset position 3 in each of Images 1, 2, and 3; and the lens is offset to offset position 4 in each of Images 1, 2, 3 (see Chevrette et al. Figure 1d for reference), thereby guaranteeing that the lens is in the same offset position when the camera is rotated from position to position.

**FIGURE A**

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51. Therefore, the combination of Anderson in view of Chevrette et al. does in fact teach and fairly suggest all limitations of at least independent Claim 25 and more specifically, Anderson in view of Chevrette et al. teach that any rotation of the camera would indeed retain the lens in an offset position within a plane substantially orthogonal to the optical axis of the lens.

***Final Argument (found in Supplemental Appeal Brief)***

52. Appellant concludes, "If the offset position were unchanged, which is neither disclosed nor suggested by either Anderson or Chevrette, the images captured in Figure A, would yield a composite image with a single microscanned image (e.g., with only elements from microscanned image 1, 2, 3, or 4)."

53. The Examiner respectfully disagrees with Appellant's conclusion regarding the combination. Chevrette et al. clearly teach a prescribed order of lens movement for capturing a microscanned image. More specifically, Chevrette et al. teach, as shown in figure 1d and as stated in column 6 (line 65) – column 7 (line 8), a first image is captured when the lens is stable, a second image is captured after the first image is captured and also after the lens is moved to the right, a third image is captured after the second image is captured and also after the lens is moved down, and a fourth image is captured after the third image is captured and also after the lens is moved to the left. It is clear from Chevrette et al. that for each microscanned image, the lens is moved, in the prescribed order, from an initial position, to a right position, to a down position, and finally to a left position. Hence, when in combination with Anderson, three complete microscanned images (with elements from microscanned image 1, 2, 3, AND 4 in figure 1d) would be captured wherein the prescribed order of lens movement would be repeated

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for each image capture thereby yielding Figure A (see above). Therefore, it is readily apparent that the combination teaches positioning the lens at an offset for a first view and maintaining the offset for a second view, as required by the claim language.

### **Third Group of Claim 28**

54. Appellant maintains the argument with respect to the Second Group alleging that Kang does not permit the lens to be positioned at an offset position within a plan substantially orthogonal to an optical axis of the lens to record a first image and a second image while the camera is in two positions one position 180 degrees rotated from the other.

55. The Examiner has successfully traversed Appellant's arguments regarding the Second Group; hence, Appellant's arguments for the present group are moot. Nonetheless, it is noted that Appellant has provided absolutely no support for the allegation: "Kang does not permit ...record a first image and a second image while the camera is in two positions one position 180 degrees rotated from the other above."

### **Fourth Group of Claims 36 and 37**

56. Appellant argues, Ejiri fails to disclose or suggest rotating a camera about an axis parallel to the optical axis of a camera lens from first position to a second position because Figure 5 at least does not disclose or suggest such a rotation.

57. The Examiner respectfully disagrees with Appellant's position. Figure 6 is merely a 3D view of Figure 6. Moreover, Figure 6 clearly indicates that the camera (position O) is rotated both along an axis parallel to the optical axis of the lens ( $\gamma$  rotation) and along an axis



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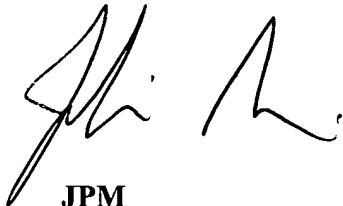
perpendicular to the optical axis of the lens ( $\xi$  rotation). Figure 5 confirms this position by demonstrating that the center points (P1 and P2) of the images (31 and 32) DO NOT lie on the same plane in both the horizontal and vertical positions.

**(11) Related Proceeding(s) Appendix**

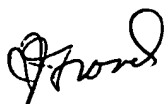
No decision rendered by a court or the Board is identified by the Examiner in the Related Appeals and Interferences section of this Examiner's Answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



JPM



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2616

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